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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,066	10/25/2001	Steven J. Corak	P04085US0	6709

27142 7590 04/17/2003

MCKEE, VOORHEES & SEASE, P.L.C.
ATTN: PIONEER HI-BRED
801 GRAND AVENUE, SUITE 3200
DES MOINES, IA 50309-2721

EXAMINER

LAIR, DONALD M

ART UNIT PAPER NUMBER

2858

DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/004,066

Applicant(s)

CORAK ET AL.

Examiner

Donald M. Lair

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).
2. Misnumbered claims 54 – 64 have been renumbered 53 – 63. Claims 54 – 64 are objected to because of the following informalities: Due to the claims being renumbered, the claimed dependencies are no longer correct. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5 – 10, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by “Trase Operating Instructions” or applicant’s admitted prior art.
6. In regards to Claims 1 and 15, the applicant discloses on page 34 lines 6 – 16, and page 40 lines 5 – 17 of the application, that time domain reflectometry, hereinafter referred to as TDR, devices and analysis software developed by Soilmoisture Equipment Corp. are used to perform the TDR and analysis functions. Therefore it is inherent that the devices and software are capable

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of obtaining the measurements and performing the analysis claimed by the applicant (Section 2.1 – 2.9).

7. In regards to Claims 5 – 10, “Trase Operating Instructions” teaches that the TDR devices used by the applicant are capable of obtaining moisture content of porous media (Chapter 2) and the applicant discloses as prior art, on page 9 lines 13 – 20 of the application, that TDR is relatively insensitive to composition of the non-liquid components of the material, and that seed and various types of corn qualify as said porous media. Therefore, it is inherent that the TDR device disclosed in “Trase Operating Instructions” is capable of obtaining moisture content measurements for the various porous media claimed by the applicant.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 – 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over “Trase Operating Instructions” or applicant’s admitted prior art.

10. In regards to Claims 2 – 4, “Trase Operating Instructions” discloses that the Trase TDR device stores a plurality of sequential soil moisture readings (Section 7-5). Since the purpose of the Trase TDR device is to monitor the moisture levels of porous media, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the sequentially stored data as a means to determine the drying rate of the porous media, for the

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purpose of establishing when the porous media will be adequately dry by comparing the current moisture content to the desired moisture content.

11. Claims 11 – 14 and 22 – 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over “Trase Operating Instructions” or applicant’s admitted prior art, in view of Hunter et al. (US-5,893,218).

12. In regards to Claims 11 – 14 and 22 – 63, the disclosure of “Trase Operating Instructions” teaches all the functions described above, but fails to teach any specific testing chambers.

13. The Hunter et al. reference teaches an automatic seed dryer, wherein automatic moisture sensors could be used to control the drying process (Column 8, lines 1 – 7). Further, the applicant discloses, on page 21 lines 3 – 11 of the specification, that the invention disclosed by Hunter et al. may be the drying system used by the applicant’s invention.

14. Since Hunter et al. explicitly state that an automatic moisture sensor may be used to control the drying system disclosed by Hunter et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the automatic moisture sensor disclosed in “Trase Operating Instructions” with the drying system taught by Hunter et al. and to use moisture readings obtained from the TDR to control the drying system for the purpose of eliminating the need for an operator to manually take samples from the drying chambers. It is implicit that this embodiment will include TDR probes at a plurality of different vertical heights, since the porous media dry at different rates, dependant on their vertical position, and that the

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manual operator must take samples from a plurality of different heights (Column 7, lines 21 – 59).

15. Claims 16 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over “Trase Operating Instructions” or applicant’s admitted prior art, in view of Hook (US-5,376,888).

16. In regards to Claims 15 – 21, the disclosure of “Trase Operating Instructions” teaches all the functions described above, wherein it is obvious that the Trase device is capable of performing all of the TDR functions claimed by the applicant since this is the actual device used; however, the limitation of an impedance mismatch at the point of the electrical connection of the probe to a cable is not taught by this disclosure.

17. Hook discloses an apparatus useful to the function of monitoring moisture levels in porous media, wherein he teaches positioning a probe in a bin/container, creating an impedance mismatch at the point of the electrical connection of the probe to a cable, sending a step function voltage pulse through the cable, and measuring the reflection of the pulse (Column 8, line 20 – Column 9, line 56).

18. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the TDR device disclosed in “Trase Operating Instructions” by creating an impedance mismatch at the point of the electrical connection of the probe to a cable as taught by Hook for the purpose of providing an identifiable impedance change at the probe terminus.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald M. Lair whose telephone number is (703) 305-4450. The examiner can normally be reached on Monday - Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1436.



Donald M. Lair
Patent Examiner
Art Unit 2858
April 10, 2003



N. Le
Supervisory Patent Examiner
Technology Center 2800